RED 37.75

5300 [illegible] slits/cm

BLUE 27 OR 29.5

VIOLET 23.5

~~t = 5 cm~~ 7

$\sin\theta = \frac{x}{\sqrt{x^2+y^2}}$ or $\tan\theta = \frac{dist}{100}$

$\lambda = d\sin\theta$

Alex Gozygne

#12 FRICTION IS A FORCE OF RESISTANCE, i.e. it is subtracted from the actual force to get the resultant. Force is measured in N.

(13) Friction is subtracted from the actual force, to get the result. If friction ~~is~~ ~~decreased~~ ~~increases~~ exists in a machine, the result will be smaller, therefore decreasing efficiency.

WIDOW

PAIN

1 BC

0 DOM

PLZ

$\frac{\text{JOULE}}{\text{COULOMB}} = \text{VOLT}$

rNoo:

ST

$R = V/I$

$P = iV$ $P = V^2/R$ $P = i^2R$ from OHM'S LAW: $I = V/R$ $V = IR$

$Q_{CAL} = (.24 \frac{CAL}{JOULE})(P_{WATTS})(t_{SECONDS})$ kilowatthour $= P \cdot t$

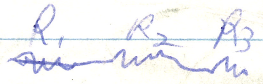
$\boxed{.24\ CAL/JOULE}$

RED +

BLK −

$R = \rho \frac{L}{A}$ (wire resistance)

$P \propto R$



add $\rho \frac{L_1}{A} + \rho \frac{L_2}{A}$

ρ/A

SERIES

$R_T = R_1 + R_2 \ldots$

$I_T = I_1 = I_2 \ldots$ $I_1 = I_2$ CURRENT ALWAYS SAME

$V_T = V_1 + V_2 \ldots$

$P_T = P_1 + P_2 \ldots$ fuse: ∿ fusable link

bimaterial metal: circuit broker

Top metal heats & bends more.

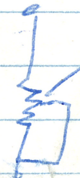
$G = \frac{1}{R}$

conductance

(mhos)

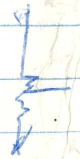
℧

Rheostat: variable resistor:



Ammeter goes in series w/ resistor $R \approx 0$.

Voltmeter in parallel w/ supply or resistor. $R \approx \infty$



PARALLEL

$E_T = V_T = V_1 = V_2 = V_3$

$I_T = I_1 + I_2 + I_3 \ldots$

$\frac{I_T}{E_T} = \frac{I_1}{V_1} + \frac{I_2}{V_2} + \frac{I_3}{V_3}$

$\frac{I}{\text{WONDER}}$

$P \propto \frac{1}{R}$ $\frac{E_T}{I_T} \quad \frac{V_1}{I_1} + \frac{V_2}{I_2} \ldots$ $\frac{V_T}{I_T} \quad \frac{V_1}{I_1} \quad \frac{V_2}{I_2}$

$\frac{1}{R_T} \quad \frac{1}{R_1} \quad \frac{1}{R_2} \ldots$

$G_T = G_1 + G_2 + G_3$

$\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$

$P_T = P_1 + P_2 + P_3$

Two R ∥s: $\frac{I_1}{I_2} = \frac{R_2}{R_1}$

$R_T = \frac{R_1 R_2}{R_1 + R_2}$

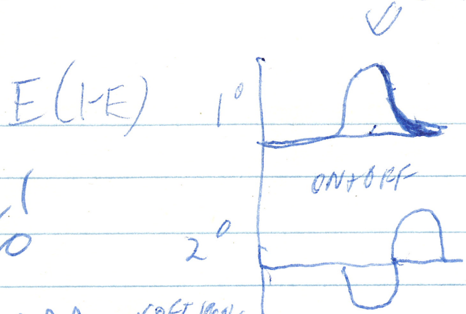
20 75

(N)-AC GEN

LAB MANUAL

4/08

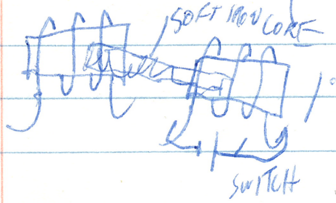
curve for inductor's magnetism

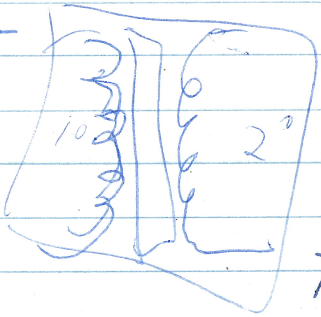


Lenz's law again! BACK EMF

mag field moves to be established

Transformer!

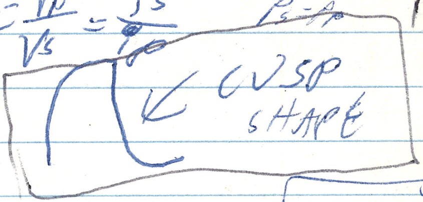




Use Pulse DC or AC to get AC

norm DC shorts out

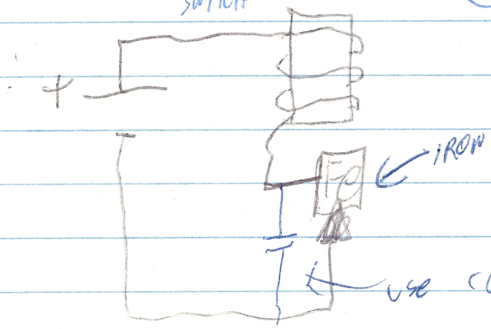
$\frac{N_p}{N_s} = \frac{V_p}{V_s} = \frac{i_s}{i_p}$ $P_s = P_p$ $P_s = P_p$



EMF = Blv

mag wire velocity

CIRCUIT BREAKER



use capacitor to stop sparks

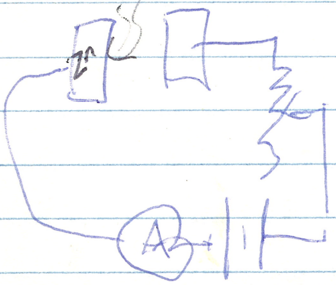
gravity 9.8 N/kg

E LAW OF PHYSICS EINSTEIN

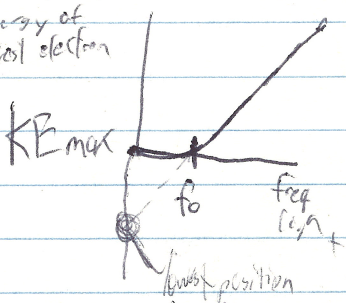
RECharge uses Xformer (lower volt) + RECTIFIER (~~[illegible]~~)

Luminiferous ether - supposed material thru which light vibrates - w Pon

"You go from dis place to dis place it's displacement"



energy of easiest electron



-much like collision

$\frac{\Delta KE}{\Delta F}$ = slope = h Planck's constant 6.6×10^{-34} J sec

KE max = $hf - hf_0$

binding energy = work function

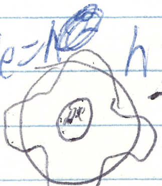
"The word falls includes the word did-not-throw-it-downward.

electrons

nucleus - nodal point
electron as wave

λ particle = $\frac{h}{mv}$ momentum

electrons are standing waves



$F\Delta T = M\Delta V$ IMPULSE = MOMENTUM

for electron, $\lambda \approx$ 1 angstrom - diam of atom

* The character-receive subroutine should be called with a parameter specifying the number of seconds to wait. The receiver should first call it with a time of 10, then <nak> and try again, 10 times.
  After receiving the <soh>, the receiver should call the character receive subroutine with a 1-second timeout, for the remainder of the message and the <cksum>. Since they are sent as a continuous stream, timing out of this implies a serious like glitch that caused, say, 127 characters to be seen instead of 128.

* When the receiver wishes to <nak>, it should call a "PURGE" subroutine, to wait for the line to clear. Recall the sender tosses any characters in its UART buffer immediately upon completing sending a block, to ensure no glitches were misinterpreted.
  The most common technique is for "PURGE" to call the character receive subroutine, specifying a 1-second timeout, and looping back to PURGE until a timeout occurs. The <nak> is then sent, ensuring the other end will see it.

* You may wish to add code recommended by Jonh Mahr to your character receive routine - to set an error flag if the UART shows framing error, or overrun. This will help catch a few more glitches - the most common of which is a hit in the high bits of the byte in two consecutive bytes. The <cksum> comes out OK since counting in 1-byte produces the same result of adding 80H + 80H as with adding 00H + 00H.

~~HEAT~~
ELEC
COMP
~~FILE~~
COILCOMP
BULB
SERIES
PLANK

COMP
BULB1
~~BULB2~~
PLANK

COMPASS

IRON FILE
COMPASS COIL

COMP
PLANK

44

elec → heat

39.3
−01.10

150 ml water

23°C →

100sec

10g water 160grams total

10v 5amps
45°C 22extra

50 5a·10v

rheostat		6 Ω Bulb	
V	a	V	a
1.5	0.04	5	.12
5	.1	10	.16
10	.2	15	.18
15	.3	20	.2
20	.4	25	.22
25	.5	30	.24
30	.6	35	.26
35	.68	40	.28
40	.78	45	.3
47	.84		

~~x~~24
500Ω
1200

40/~~100~~/60

5 t=.25 ~~V=45~~

160 22°C q=m[illegible]

SERIES PAR
400 100 60
V 30 2,5·3,8 12,5
I [illegible] ~~VT=45~~ VT=45
.15 PAR
I 1,8 4,8 2,8
V=45
I=9,5